# Natural Heritage Resources Fact Sheet

## **Purple Pitcher-plant** (*Sarracenia purpurea*)

### Description

This unusual looking plant is actually a deadly trap for some insects and a home to others. A herbaceous perennial growing from a thick underground stem, the purple pitcher-plant forms hollow leaves, called *pitchers*, which often collect water and trap insects. The pitchers have hooded mouths and range from 8 to 10 inches in length. The pitchers may vary in color from bright yellow-green to dark purple and have stiff downward-pointing hairs lining the inside. The pink to maroon flowers grow at the end of a tall leafless stem which may be from 8 to 16 inches in height. Flowers appear from April through July.

There are at least two varieties of this species in Virginia, a northern variety (*Sarracenia purpurea* ssp. *purpurea*) and a southern variety (*S. purpurea* ssp. *venosa*), as well as a naturally occurring hybrid with yellow pitcher-plant (*Sarracenia flava*). The yellow pitcher-plant has tall, narrow, yellow-green pitchers and bears a yellow flower.

### Habitat

Purple pitcher-plants grow in nutrient-poor saturated soils of sphagnum bogs, wet savannas and seepages. Most pitcher-plants' original habitats in Virginia were kept open by frequent wildfire. Due to suppression of fires and draining or filling of these wetland habitats during the past 50 years, the plants are now mostly confined to wet areas along powerline and railroad rights-of-way where open conditions are artificially maintained.

### Distribution

The northern purple pitcher-plant is the only pitcher species that ranges farther north than Virginia. It is found throughout Canada and the Northeast United States and parts of the Midwest. In Virginia it is found in the coastal plain and lower piedmont. Further south its range is in the coastal plain to Mississippi. It is considered rare in Virginia, where it is known from 15 counties.

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### Pitcher-Plant Ecology

Purple pitcher-plants are carnivorous. The pitcher-shaped leaves have evolved to trap and digest insects. Insect prey is lured into the pitcher by the scent of nectar. Inside the pitcher, the stiff downward-pointing hairs allow insects to crawl into the pitcher but prevent them from crawling out. Eventually, trapped insects drown in the water held within the pitcher. Bacteria, microscopic organisms, and aquatic insects and larvae decompose the dead prey. This process releases nutrients into the water. The pitcher-plant is able to absorb these nutrients. The plant in turn releases oxygen into the water which is used by the tiny organisms harbored in the pitcher.

The unique environment within the pitcher is home to at least three rare insects. The larvae of the pitcher-plant mosquito, pitcher-plant midge and the pitcher-plant fly

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For more information, contact
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develop in the water within the pitcher and contribute to the decomposition of drowned insect prey.

Purple pitcher-plants have evolved as intimate a relationship with their pollinators as with their insect prey and pitcher dwellers. Arising from a leafless stem, the maroon flowers appear in May. The flower structures are intricate and require the pollinator, usually a bumblebee, to enter by one route and exit by another. Pollen is brushed off the bee as it enters the flower, and the bee picks up pollen from the plant as it exits, thus helping to ensure cross-pollination.

**Conservation**

Wetland habitats and the species they support are vulnerable to changes in water quality and quantity. Changes in hydrology due to road construction, development of adjacent lands and beaver dams adversely affect the habitat conditions required by purple pitcher-plant. Landowners and managers can avoid such impacts by using *best management practices*. Environmentally sound landscaping methods also help minimize disturbance to natural areas. The Alliance for the Chesapeake Bay's Bayscapes Program, for instance, demonstrates how landowners can reduce nonpoint source pollution and lower their landscaping costs. For more information on Bayscapes, contact the Alliance for the Chesapeake Bay, P.O. Box 1981, Richmond, Virginia 23216.

Fire suppression has eliminated purple pitcher-plant habitat, resulting in an invasion of woody plant species which shade and suppress the shade intolerant pitcher-plants. Prescribed fire can help enhance and restore the habitat of this plant. In areas actively maintained, such as rights-of-way, mowing is a preferred alternative to herbiciding for the control of woody plant species.

DCR's Division of Natural Heritage maintains a database on the presence of our state's natural heritage occurrences. Natural Heritage biologists, stewardship and protection staff can assist landowners with questions regarding rare species and sensitive habitats. The staff also provides information and expertise concerning conservation and management practices which help to insure that we preserve and pass on to future Virginians our rich natural heritage.

To learn more about Virginia's rare plant and animal species and rich biological communities write to the following: *Plant and Insect Species* - Virginia Department of Agriculture and Consumer Services, Office of Plant Protection, P.O. Box 1163, Richmond, Virginia 23209; *Animal Species* - Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, Virginia 23230; *Plants, Animals, or Biological Communities* - Virginia Department of Conservation and Recreation, Division of Natural Heritage, Main Street Station, 1500 East Main Street, Suite 312, Richmond, Virginia 23219.

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